

# SYSTEMATIC NOTES ON SOME SPECIES IN THE FRUIT FLY TRIBE TEPHRITINI (DIPTERA: TEPHRITIDAE: TEPHRITINAE) IN THE ASIAN AND PACIFIC REGIONS

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## Abstract

Four synonyms and two new combinations are proposed for several species of Tephritini described from India, Afghanistan, Kazakhstan, NW China and French Polynesia: *Tephritis darjeelingensis* Agarwal, Grewel, Kapoor & Rahman, syn. n. of *T. atocoptera* Agarwal & Kapoor; *Tephritis mongolica occidentalis* Dirlbek & Dirlbek and *T. connexa* Wang [not *T. connexa* Macquart], syns. n. of *T. mongolica* Hendel; *Tephritis ludhianaensis* Agarwal & Kapoor, syn. n. of *T. umbrosa* Dirlbek & Dirlbek; *Campiglossa pishanica* (Wang), comb. n. [transferred from *Tephritis* Latreille]; *Soraida angustipennis* (Malloch), comb. n. [transferred from *Campiglossa* Rondani]. Several other species of *Campiglossa* and *Tephritis* from Southeast Asia and the South Pacific are discussed, with records of *Campiglossa iracunda* (Hering) from India, Thailand and Vietnam and *Tephritis conura* (Loew) from India regarded as misidentifications.

## Introduction

Continuing study of flower-infesting fruit flies in the Indo-Australian and Oceanian Regions has revealed four new synonyms and two new combinations among species in the *Tephritis* Latreille and *Campiglossa* Rondani groups of genera in tribe Tephritini. In addition, the identities of several other species from Southeast Asia and the South Pacific are discussed. These are complex, variable and speciose groups of flies and the following notes are offered as a contribution towards a better understanding of their taxonomy and biogeography. Comments are based largely on a literature review. It has not been possible to compare types or dissect their terminalia; most are unavailable for study. All species recorded here are presumed to breed in the flowerheads of Asteraceae.

### *Campiglossa* group of genera

#### *Campiglossa iracunda* (Hering)

*Paroxyna iracunda* Hering, 1938: 55. (Kambaiti, N. Burma).

*Campiglossa iracunda*: Wang, 1998: 262. (Yunnan Province, S. China).

**Comments.** Only records of *C. iracunda* from northern Burma (Hering 1938) and Yunnan in southern China (Wang 1998) appear to belong here. This species has a complete medial dark band in cell c, 3 or 4 hyaline indentations in cell r<sub>1</sub>, 2 hyaline marginal spots at the apex of cell r<sub>2+3</sub>, yellow legs, 3 dark thoracic vittae, a black posterior notopleural seta and large, dark abdominal spots. Hardy (1973) noted that it might be synonymous with *C. lyncea* (Bezzi) but his records, from Vietnam and Thailand, appear to be a mix of *C. lyncea* and *C. siamensis* (Hardy). Note that the illustration of *C. iracunda* in Kapoor (1993) is copied from Hardy (1973) and appears not to be this species, making doubtful a record (Kapoor *et al.* 1979) from India.

*Campiglossa lyncea* (Bezzi)

*Tephritis lyncea* Bezzi, 1913: 165. (Darjeeling, West Bengal, N. India).

? *Stylia iracunda*: Hardy, 1973: 328. (*partim*: S. Vietnam). ? Misidentification.

? *Paroxyna iracunda*: Kapoor *et al.*, 1979: 148. (N. India). ? Misidentification.

*Campiglossa lyncea*: Norrbom *et al.*, 1999: 112. [as new combination].

*Comments.* *Campiglossa lyncea* is known from northern India (Bezzi 1913, Agarwal and Kapoor 1988) and southern Vietnam (Hardy 1973). Records of *C. iracunda* (Hering) from northern India (Kapoor *et al.* 1979, Agarwal and Sueyoshi 2005) and from Dalat and Mt Lang Bian in southern Vietnam (Hardy 1973) probably also belong here. This species appears to differ from *C. iracunda* in lacking distinct, dark thoracic vittae and abdominal spots, in having the femora often darkened, and in having the dark wing markings less extensive with a much reduced dark spot in the middle of cell c. It agrees with *C. iracunda* in having 2 hyaline marginal spots at the apex of cell  $r_{2+3}$ . Note that the illustration of *C. lyncea* in Kapoor (1993) is copied from Hardy (1973) and appears to be of a Vietnamese specimen.

*Campiglossa media* (Malloch)

*Paroxyna media* Malloch, 1938: 116. (Rapa I., Austral Is, French Polynesia).

*Campiglossa media*: Norrbom *et al.*, 1999: 112. [as new combination].

*Comments.* This species is known only from Rapa, one of the most southerly of the Austral [Tubuai] Islands in French Polynesia. In common with other *Campiglossa* species, *C. media* has 2 pairs of frontal setae and a geniculate proboscis. It appears to be allied to *C. putrida* (Hering) from the Lesser Sunda Islands [Nusa Tenggara] in Indonesia and Papua New Guinea and to *C. crockeri* (Curran) from the Galapagos Islands; all three species have an entirely dark pterostigma and a large, round hyaline spot in cell  $r_{2+3}$  below the apex of vein  $R_{2+3}$ . Note that '*Trypeta*' *aesia* Walker from the Galapagos Islands was also included in *Campiglossa* by Norrbom *et al.* (1999) but appears to be better placed in *Euaesta* Loew (see Foote 1982). A second species from Rapa described in *Paroxyna* Hendel by Malloch (1938) is transferred to *Soraida* Hering [see below].

*Campiglossa pishanica* (Wang), **comb. n.**

*Tephritis pishanica* Wang, 1996: 188; 1998: 300. (Pishan, Xinjiang, NW China).

*Comments.* *Campiglossa pishanica* is known only from NW China (Xinjiang). As noted by Wang (1998), it is closely related to *C. coei* (Hardy) from Nepal and southern China (Yunnan). Both species have 5 dark thoracic vittae and a pair of distinct dark spots on each abdominal tergite; these, plus the wing pattern type (see Hancock and Drew 2003) are typical of genus *Campiglossa*, to which the species is referred. *C. coei* was included in *Tephritis* by Hardy (1964) and Wang (1998) but was placed in *Campiglossa* by Korneyev (1990) and Norrbom *et al.* (1999).

***Campiglossa siamensis* (Hardy)**

*Stylia siamensis* Hardy, 1973: 329. (Doi Angka near Chiang Mai, N. Thailand).

*Stylia iracunda*: Hardy, 1973: 328. (*partim*: N. Thailand). Misidentification.

*Campiglossa siamensis*: Norrbom *et al.*, 1999: 114. [as new combination].

*Comments.* Records of *C. iracunda* (Hering) from Doi Suthep and Doi Pui, [near Chiang Mai] in northern Thailand (Hardy 1973, including pl. 6, fig. 52) appear to be misidentifications of a variable *C. siamensis*. A specimen from Doi Suthep with reduced hyaline markings was illustrated by Hancock and McGuire (2002). *C. siamensis* has a much reduced dark spot in the middle of cell c, only one hyaline marginal spot at the apex of cell  $r_{2+3}$ , yellow legs and a brown to yellowish posterior notopleural seta. It resembles *C. lyncea* in lacking distinct thoracic vittae and abdominal spots but has a longer ov scape. The wing markings are paler than those of *C. lyncea* (*c.f.* Hardy 1973, pl. 6, figs 53-54) but, apart from the single marginal hyaline spot in cell  $r_{2+3}$ , they are otherwise similar.

***Campiglossa spenceri* (Hardy)**

*Stylia spenceri* Hardy, 1973: 330. (Mt Lang Bian & Dalat, S. Vietnam).

*Campiglossa spenceri*: Wang, 1998: 271. (Sichuan & Xizang Provinces, China).

*Comments.* This species has a wing pattern very similar to that of *C. iracunda* but has mostly black femora, a whitish posterior notopleural seta and no dark thoracic vittae. It differs from *C. iracunda*, *C. lyncea* and *C. siamensis* in the shorter ov scape, being as long as the last 2 abdominal segments in *C. spenceri*, as long as the last 3 in *C. iracunda* and *C. lyncea* and a little longer than the last 4 in *C. siamensis*. It is known from southern Vietnam and southwestern China (Sichuan and Xizang).

***Soraida angustipennis* (Malloch), comb. n.**

*Paroxyna angustipennis* Malloch, 1938: 115. (Rapa I., Austral Is, French Polynesia).

*Campiglossa angustipennis*: Norrbom *et al.*, 1999: 108. [as new combination].

*Comments.* This species was described from Mt Tepiahu on Rapa, one of the Austral [Tubuai] Islands in French Polynesia. Only the type male has been recorded. Previously referred to *Campiglossa*, it shares with *Soraida tenebricosa* Hering, its only known congener from the Indonesian Lesser Sunda Islands, the presence of 3 pairs of dark frontal setae; all other Indo-Australian and Pacific genera referred to the *Campiglossa* group have only 2 pairs of dark frontal setae. The genus-group placement of *Soraida* was discussed by Hancock (2007). Other genera in the *Campiglossa* group with 3 pairs of dark frontal setae are confined to the Afrotropical Region. Both *Soraida* species have the head slightly higher than long, the upper orbital and outer vertical setae white, the occiput black centrally, a geniculate but not greatly elongate proboscis, the anepimeral and several short anepisternal setae (below the black upper anepisternal seta) yellowish, short apical

scutellar setae, the wing narrowed and with a dark pterostigma that is about twice as long as wide and paler at its base. *S. angustipennis* differs from *S. tenebricosa* in having a narrower and more elongate wing with numerous hyaline spots and indentations.

### *Tephritis* group of genera

#### *Tephritis admissa* Hering

*Tephritis admissa* Hering, 1961: 326. (NE Afghanistan).

*Tephritis conura*: Hancock and McGuire, 2002: 15. (Gulmarg, Kashmir, NW India). Misidentification.

**Comments.** A record of *Tephritis conura* (Loew) from Gulmarg, Kashmir (Hancock and McGuire 2002, Agarwal and Sueyoshi 2005) is not of that species. The specimens concerned are in the Zoological Museum, University of Copenhagen and appear to belong to *T. admissa*, in which a hyaline subapical spot on the wing is present or absent (Hering 1961). *T. conura* has a large hyaline apical spot, a hyaline spot in the pterostigma and a third hyaline spot in cell  $r_1$  towards the apex; these are lacking in both typical *T. admissa* and the Gulmarg specimens. *Tephritis conflata* K. & J. Dirlbek, described from Kyrgyzstan, appears to be very similar to *T. admissa* but recorded differences include all thoracic setae black and an apparently shorter oviscape (Dirlbek and Dirlbek 1995). *T. admissa* is recorded here from 1600 to 3500 metres in NE Afghanistan and NW India (Kashmir).

#### *Tephritis atocoptera* Agarwal & Kapoor

*Tephritis atocoptera* Agarwal & Kapoor, 1988: 122. (Srinagar, Jammu and Kashmir, NW India).

*Tephritis darjeelingensis* Agarwal, Grewel, Kapoor & Rahman, 1992: 21. (Darjeeling, West Bengal, N. India). **Syn. n.**

**Comments.** As suggested by Hancock and McGuire (2002), variation in recorded leg colour, coupled with descriptions and illustrations of both taxa listed above (Agarwal and Kapoor 1988, Agarwal *et al.* 1992), leave little doubt that they are conspecific. This species has an elongate ovipositor and appears to be closely related to *T. hendeliana* Hering (= *T. heiseri* of authors [e.g. Hendel 1927, Wang 1998], not Frauenfeld), differing in the more extensive dark areas on the wing. It is known from localities above 1000 metres in N and NW India.

#### *Tephritis mongolica* Hendel

*Tephritis mongolica* Hendel, 1927: 191. (Kuku-Nor [Lake Qinghai] region, Qinghai, NW China). Lectotype destroyed.

*Tephritis mongolica occidentalis* K. Dirlbek & J. Dirlbek, 1995: 47. (Aksu-Dshabagly, Talazskiy Alatau, Tienshan, SE Kazakhstan). **Syn. n.**

*Tephritis connexa* Wang, 1996: 187; 1998: 295. (Qiemo, Xinjiang, NW China). Invalid name: preoccupied by *Tephritis connexa* Macquart, 1835. **Syn. n.**



*Comments.* Allowing for a small amount of variation, the descriptions and illustrations of both *T. mongolica* Hendel and *T. connexa* Wang (Hendel 1927, Wang 1998) leave little doubt that they are conspecific. The statement in Wang's (1998) key that the wing lacks a Y-shaped hyaline band in the anteromedian portion in *T. mongolica* is inaccurate [and perhaps based on the redrawn figure in Zia (1937)]. The number of hyaline spots in cells dm and cua<sub>1</sub> largely depends on their degree of coalescence. *T. connexa* Wang, 1996, is also a junior homonym of *Tephritis connexa* Macquart, 1835, a species currently unrecognised. Wang (1998) recorded additional specimens of *T. connexa* from Zhaosu and Oku in NW China, close to the type locality of *T. mongolica occidentalis* K. & J. Dirlbek (Dirlbek and Dirlbek 1995), which also appears to be a synonym. This species is known from localities between 1200 and 3000 metres in NW China (Qinghai & Xinjiang) and SE Kazakhstan. It also occurs in Kyrgyzstan (B. Merz, pers. comm.).

### ***Tephritis umbrosa* Dirlbek & Dirlbek**

*Tephritis umbrosa* J. Dirlbek & K. Dirlbek, 1968: 178. (Darunta & Jalalabad, Nengrahar Province, NE Afghanistan).

*Tephritis ludhianaensis* Agarwal & Kapoor, 1988: 121. (Ludhiana, Punjab, NW India). **Syn. n.**

*Comments.* Descriptions and illustrations of both *T. umbrosa* J. & K. Dirlbek and *T. ludhianaensis* Agarwal & Kapoor (Dirlbek and Dirlbek 1968, Agarwal and Kapoor 1988) leave little doubt that they are conspecific. As noted by Dirlbek and Dirlbek (1968), *T. umbrosa* is superficially similar to the Palaearctic *T. cometa* (Loew) and an earlier record of *T. cometa* from Afghanistan (Hering 1961) might also belong here; it at least requires confirmation. In *T. umbrosa* the dark subapical band in cell dm crosses the cell; in *T. cometa* it ends half way across. *T. umbrosa* is known from localities below 600 metres in NE Afghanistan and NW India.

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